C 13.51:704

current Awareness A BIWEEKLY CRYOGENICS Service

MAY 26-JUN. 6, 1980 LIST NO. 704



SECTION I. LOW TEMPERATURE PHYSICS AND CHEMISTRY

- PHYS. REV. LETT. VOL 44, NO. 19 (MAY 1981)
- TUNNELING OF HYDROGEN IN SURFACE DIFFUSION ON THE TUNGSTEN (110) PLANE, BY DIFOGGIO, R. GOMER, R. (CHICAGO UNIV., ILL. JAMES FRANCK INST.) P 1258-63.
- EXACTLY SOLVABLE MICROSCOPIC SEOMETRIES AND RISOROUS BOUNDS FOR THE COMPLEX DIELECTRIC CONSTANT OF A TWO-COMPONENT COMPOSITE MATERIAL. BY BERGMAN, D. J. (TEL AVIV UNIV., RAMAT-AVIV, ISRAEL. DEPT. OF PHYSICS AND ASTRONOMY) P 1285-7.

PHYS. REV. B VOL 21, NO. 8 (APR 1980)

- PHYSICAL STUDIES OF AU(X)SI(1-X) AMORPHOUS ALLOYS. BY MANGIN, PH. MARCHAL, G. MOUREY, C. JANOT, CHR. (NANCY UNIV., FRANCE. LAB. DE PHYSIQUE DU SOLIDE) P 3947-56.
- LOW-TEMPERATURE HEAT CAPACITY OF SC-ZR AND SC-MG ALLOYS. BY TSANG, T.-W.E. GSCHNEIDNER, K.A., JR. SCHMIDT, F.A. (AMES LAB., IOWA. DEPT. OF MATERIALS, SCIENCE, AND ENGINEERING) P 3100-9.
- X-RAY SCATTERING STUDY OF ONE-DIMENSIONAL LATTICE DYNAMICS IN HG(3-DELTA) ASF(6). SPAL, R. CHEN, C.-E. EGAMI, T. ET AL (PENNSYLVANIA UNIV., PHILADEL PHIA. DEPT. OF PHYSICS) P 3118-6.
- MICROSCOPIC THEORY OF THERMAL DESORPTION AND DISSOCIATION PROCESSES CATALYZED BY A SOLID SURFACE. BY DE,G.S. LANDMAN,U. RASOLT,M. (GEORGIA INST. OF TECH., ATLANTA. SCHOOL OF PHYSICS) P 3256-68.
- FAR-INFRARED PHOTOCONDUCTIVITY MEASUREMENTS ON TELLURIUM IN STRONG MAGNETIC FIELDS. BY
- VON KLITZING, K. (WUERZBURG UNIV., GERMANY. PHYSIKALISCHES INST.) P 3349-57.

 <u>ELECTRON-IRRADIATION DEFECTS IN N-TYPE GAAS.</u> BY FARMER, J.W. LOOK, D.C. (DAYTON UNIV., OHIO. DEPT. OF PHYSICS) P 3389-98.

 <u>HIGHLY DISORDERED A MORPHOUS SELENIUM STUDIED BY ULTRAVIOLET PHOTOEMISSION SPECTROSCOPY.</u>
- BY TAKAHASHI, T. OHNO, K. HARADA, Y. (TOKYO UNIV., JAPAN. DEPT. OF CHEMISTRY) P 3399-484.
- 10. ELECTRON DIFFRACTION FROM SUPERLATTICES IN GRAPHITE-RUBIDIUM INTERCALATION COMPOUNDS. BY KAMBE, N. DRESSELHAUS, G. DRESSELHAUS, M.S. (MASSACHUSETTS INST. OF TECH., CAMBRIDGE. CENTER FOR MATERIALS SCIENCE AND ENGINEERING) P 3491-561.
- BRILLOUIN INSTABILITY IN MAGNETOACTIVE N-TYPE PIEZOELECTRIC SEMICONDUCTORS. BY SEN,P.K. 11. (RAVISHANKAR UNIV., RAIPUR, INDIA. DEPT. OF PHYSICS) P 3634-9.
- 12. NEUTRON-DIFFRACTION STUDY OF THE STATIC STRUCTURE FACTOR AND PAIR CORRELATIONS IN LIQUID BY SVENSSON, E.C. SEARS, V.F. WOODS, A.D. B. MARTEL, P. (ATDMIC ENERGY OF CANADA, CHALK RIVER, ONTARIO. RESEARCH CO.) P 3638-51.
- THERMAL EXPANSION AND MAGNETOSTRICTION OF NIF(2). BY PAVLOVIC, A.S. (WEST VIRGINIA 13. UNIV., MORGANTOWN. DEPT. OF PHYSICS) P 3652-7.
- 14. SPIN-HAVE MODES AND LOW-TEMPERALURE SPECIFIC HEAT IN THE SPIN-GLASS EU(X) SR (1-X) S -X=0.54 AND 0.40. BY CHING, W.Y. HJBER, D.L. LEUNG, K.M. (NISSOURI UNIV., KANSAS CITY. DEPT. OF PHYSICS) P 3708-12.
- BAND STRUCTURE AND THERMODYNAMIC PROPERTIES OF HE ATOMS NEAR A GRAPHITE SURFACE. 3Y 15. CARLOS, W.E. COLE, M.W. (NAVAL RESEARCH LAB., WASHINGTON, D. C.) P 3713-23.
- LOW-TEMPERATURE ULTRASONIC VELOCITY MEASUREMENTS IN NA BETA-ALUMINA. BY DOUSSINEAU, P. 16. LEISURE, R.G. LEGROS, P. ET AL (PARIS UNIV., FRANCE. LAB. CURIE) P 3721-4.
- REV. MOD. PHYS. VOL 52, NO. 2, PT. 1 (APR 1980)

 GRAVITATIONAL-WAVE RESEARCH CURRENT STATUS AND FUTURE PROSPECTS. BY THORNE, K.S. 17. (CALIFORNIA INST. OF TECH., PAJADENA) P 285-97.
- THE SOLID MOLECULAR HYDROGENS IN THE CONDENSED PHASE FUNDAMENTALS AND STATIC 18. PROPERTIES. BY SILVERA-I.F. (AMSTERDAM UNIV., NETHERLANDS. NATUURKUNDIG LAB.) P 393-452.
- CRITICAL PHENOMENA AT LOW TEMPERATURE. 3Y AHLERS, G. (CALIFORNIA UNIV., SANTA BARBARA. 19. DEPT. OF PHYSICS) P 489-533.
 - SCIENCE VOL 208, NO. 4445 (MAY 1980)
- ASSESSING THE ENERGY SITUATION. (REVIEWS OF THREE BOOKS). BY NOLL, R.G. (CALIFORNIA INST. OF TECH., PASADENA. DIV. OF HUMANITIES AND SOCIAL SCIENCES) P 701-2. 20.
- QIL SHALES AND CARBON DIOXIDE. BY SUNDQUIST, E.T. MILLER, G.A. (GEOLOGICAL SURVEY, 21. RESTON, VA.) P 740-1.
- SATURNS LUMINOSITY AND MAGNETISM. (INCLUDES SOLIC H(2)+HE MIXTURES)., BY STEVENSON, D. J. (CALIFORNIA UNIV., LOS ANGELES. DEPT. OF EARTH AND SPACE SCIENCES) P 746-7. 22.
 - SCIENCE VOL 208, NO. 4446 (MAY 1980)
- 23. P 805.
- ADVANCED TECHNOLOGY MATERIALS. (EDITORIAL ON A SPECIAL ISSUE). 3Y ABELSON,P.H. FIBER-REINFORCED COMPOSITES ENGINEERED STRUCTURAL MATERIALS. BY BEARDMORE,P. HARWOOD,J.J. KINSMAN,K.R. ROBERTSON,R.E. (FORD RESEARCH LAB., DEARBORN, MICH. 24. DEPT. OF METALLURGY) P 833-40.
- HIGH-FIELD, HIGH-CURRENT SUPERCONDUCTORS. BY HULM, J.K. MATTHIAS, B.T. (WESTINGHOUSE ELECTRIC CORP., PITTSBURGH, PA. RESEARCH AND DEVELOPMENT CENTER) P 881-7. 25.
- JOSEPHSON TUNNEL-JUNCTION ELECTRODE MATERIALS. BY KIRCHER, C.J. MJRAKAMI, M. (IBM 26. WATSON RESEARCH CENTER, YORKTOWN HEIGHTS, N. Y.) P 944-50.

- J. CHEM. PHYS. VOL 72, NO. 8 (APR 1980)
- IS A TWO-STATE MODEL APPROACH APPLICABLE TO LIQUID WATER. BY ENDO, H. (NATIONAL DEFENSE 27.
- ACADEMY, YOKOSUKA, JAPAN. DEPT. OF APPLIED PHYSICS) P 4324-6.

 THE ULTRAVIOLET ABSORPTION SPECTRUM OF LIQUID WATER. BY QUICKENDEN, T.I. IRVIN, J.A.

 (WESTERN AUSTRALIA UNIV., NEDLANDS. DEPT. OF PHYSICAL AND INORGANIC CHEMISTRY) P 4416-28.
- TEMPERATURE DEPENDENCE OF THE DIAMAGNETISM OF WATER, BY PHILO, J.S. FAIRBANK, W.M. 29. (CONNECTICUT UNIV., STORFS. BIOCHEMISTRY AND BIOPHYSICS SECTION) P 4429-33.
- EQUATION FOR THE MAGNETIC SUSCEPTIBILITY OF WATER. BY DAY, E.P. (STATE UNIV. OF NEW 30. YORK AT BUFFALO, AMHERST. DEPT. OF PHYSICS) P 4434-6.
 DIFFRACTIVE SCATTERING OF H ATOMS FROM THE (JC1) SURFACE OF LIF AT 78 K.
- 31 . SCOLES, G. VALBUSA, U. (FACOLTA DI INGEGNEPIA GENOA, ITALY. CARACCIOLC, G. IANNOTTA.S. LAB. DI CHIMICA) P 4491-9.
- COMMENTS ON A SEMIGROUP FORMALISM FOR THE DESCRIPTION OF PHASE AND POPULATION RELAXATION 32. PROCESSES. BY KOSLOFF, R. RICE, S.A. (CHICAGO UNIV., ILL. DEPT. OF CHEMISTRY) P 4591-9.
- SOLIO STATE PHASE TRANSITIONS AND MOLECULAR REGRIENTATION IN ORTHO- AND PARA-CARBORANE -33. AN ISOMER EFFECT, BY BECKMANN, P. LEFFLER, A.J. (BRYN MAWR COLL., PA. CEPT. OF PHYSICS) P 46J0-7.
- GENERALIZED CLASSICAL THEORY OF INTRAMOLECULAR COORDINATE RELAXATION IN POLYATOMIC MOLECULES. BY VICHARFLLI, 7.A. MCJONALD, F.A. (TEXAS UNIV. AT DALLAS, PICHARDSON. CENTER FOR QUANTUM ELECTRONICS) P 4627-36. 34.
- RAYLEIGH AND RAMAN SCATTERING NEAR THE CRITICAL POINT OF CARBON GLOXIDE. BY GARRABOS, Y. 35. TUFEU, R. LE NEINORE, B. ET AL (CENTRE UNIV. PARIS, VILLETANEUSE, FRANCE. LAB. DES INTERACTIONS MOLECULAIRES ET DES HAUTES PRESSIONS) P 4637-51.
 - J. APPL. PHYS. VOL 51, NO. 3 (MAR 1980)
- UNIDIRECTIONAL MAGNETIC GRADIOMETERS. BY KARP, P. DURET, O. (HELSINKI UNIV. OF TECHNOLOGY, ESPOO, FINLANO. DEPT. OF TECHNICAL PHYSICS) P 1267-72. 36.
- GENERALIZED CONCEPTS IN LARGE-SCALE LASER ISOTOPE SEPARATION, WITH APPLICATION TO 37. DEUTERIUM: BY VANDERLEEDEN, J.C. (CAMROSE LUTHERAN COLL., ALBERTA. DEPT. OF PHYSICS) P 1273-85.
- TECHNOLOGICAL ASPECTS OF CRYOGENIC LASER-FUSION TARGETS. BY MUSINSKI.D.L. HENDERSON, T.M. SIMMS.R.J. ET AL (KHS FUSION, INC., ANN ARBOR, MICH.) P 1394-402. 38.
- DETERMINATION OF THE AMORPHOUS CONTENT OF SUPERCONDUCTING FILMS BY X-RAY DIFFRACTION AND ITS RELATION TO TRANSITION TEMPERATURE. BY VANDER, I. CADIEU, F.J. (QUEENS COLL., NEW YORK, N. Y. DEPT. OF PHYSICS) P 1481-3.
- EVIOENCE THAT HELIUM IRRADIATION BLISTERS CONTAIN HIGH-PRESSURE GAS. BY TERREAULT, B. 40 . ROSS, G. ST.-JACOUES, R.G. VEILLEUX, G. QUEBEC UNIV., VAPENNES. CENTRE DE RECHERCHES DE L ENERGIE) P 1491-3.
- THERMOELECTRIC POWER OF BCC TRANSITION-METAL ALLOYS OF THE SECOND PERIOD. (4.2-30 K). BY LIN, A.C. BROTZEN, F. R. LOFTIN, R. B. (SOUTHERN METHODIST UNIV., DALLAS, TEX.) P 1655-9.
- 42. THERMOELECTRIC POWER OF TANTALUM-TUNGSTEN ALLOYS. (4.2-303 K). BROTZEN, F.R. (SOUTHERN METHODIST UNIV., DALLAS, TEX.) P 1660-2.
- SIMPLE-HEATING-INDUCED JOSEPHSON EFFECTS IN QUASIPARTICLE-INJECTED SUPERCONDUCTING WEAK 43. LINKS. BY KAPLAN, S.B. (IBM WATSON RESEARCH CENTER, YORKTOWN HEIGHTS, N. Y.) P 1682-5.
- 3Y EKRUT, H. POLARITY-DEPENDENT TUNNELING CONDUCTANCE OF TA/TA(2)0(5)/AG JUNCTIONS. HAHN, A. (RUHR-UNIV. BOCHUM, GERMANY. INST. FUER WERKSTOFFE DER ELEKTROTECHNIK) P 1686-91.
- 45. HYSTERESIS LOSSES AND MAGNETIC PHENOMENA IN POTATING DISKS OF TYPE-II SUPERCONDUCTORS. BY BOYER, R. FILLION, G. LEBLANC, M.A.R. (OTTAWA UNIV., ONTARIO. DEPT. OF PHYSICS) P 1692-701.
- MEASUREMENTS OF DEVICE PARAMETERS ON LARGE ARRAYS OF JOSEPHSON INTERFEROMETEPS. BY 46. BASAVAIAH, S. GREINER, J.H. ZAPPE, H.H. SINGER, S.J. (IBM WATSON RESEARCH CENTER, YORKTOWN HEIGHTS, N. Y.) P 1732-13.
- CRYSTALLOGRAPHIC TEXTURING IN NB(3) SN MULTIFILAMENTARY SUPERCONDUCTING COMPOSITES. BY 47. COGAN, S.F. ROSE, R.M. (MASSACHUSETTS INST. OF TECH., CAMBRIDGE. DEPT. OF MATERIALS SCIENCE AND ENGINEERING) P 1711-3.
- SUPERCONDUCTING PROPERTIES OF IN SITU-PROCESSED NB(3)/SN-CU COMPOSITES. 48. FINNEMORE, D.K. OSTENSON, J.E. VERHOEVEN, J.D. GIBSON, E.O. (AMES LAB., IOWA. DEPT. DF PHYSICS) P 1714-8.
- 49. INPUT NOISE IN THE HYSTERETIC RF SQUIO - THEORY AND EXPERIMENT. BY HOLLENHOPST, J.N. GIFFARD, R.P. (BELL TELEPHONE LASS., INC., MURRAY HILL, N. J.) P 1719-25.
- NB(3) AL THIN-FILM SYNTHESIS BY ELECTRON-BEAM COEVAPORATION. BY KWO.J. HAMMOND.R.H. 50. GEBALLE, T. H. (STANFORD UNIV., CALIF. DEPT. OF APPLIED PHYSICS) P 1726-32.
- 51. TEMPERATURE DEPENDENCE OF HALL MOBILITY IN INDIUM-TIN OXIDE THIN FILMS, BY MORRIS, J.E. RIGGE, M.I. BISHOP, C.A. HOWSON, R.P. (VICT CRIA UNIV., WELLINGTON, NEW ZEALAND. DEPT. OF PHYSICS) P 1847-9.
- THE JOSEPHSON DEVICE WITH A MATCHEO RF SOURCE. BY LONGACRE, A., JR. (PENNSYLVANIA UNIV., PHILADELPHIA. MOORE SCHOOL OF ELECTRICAL ENGINEERING) P 1854-6. 52.

PHYS. LETT. A VOL 76, NO. 5,6 (APR 1986)

- SUPERCONOUCTIVITY AND MAGNETIC ORDERING IN THE PSEUDOTERNARY HO(IR(X)RH(1-X))(4)B(4) SYSTEM. BY KU, H.C. ACKER, F. MATTHIAS, B.T. (CALIFORNIA UNIV., SAN DIEGO, LA JOLLA. INST. FOR PURE AND APPLIED PHYSICAL SCIENCES) P 399-402.
- 54. TEMPERATURE AND SPACE CHARGE EFFECTS ON TUNNELING CURRENTS THROUGH VERY THIN FILMS. SHOUSHA,A.H.M. (UNITEO ARAB EMIRATES UNIV., AL AIN, UNITEO ARAB EMIRATES. OEPT. PHYSICS) P 403-5.
 - SCI. AM. VOL 242, NO. 6 (JUN 1980)
- THE DEEP-EARTH-GAS HYPOTHESIS. BY SOLO, T. SOTER, S. P 154-61.
- PROC. R. SOC. LONDON SER. 4 VOL 370, NO. 1741 (MAR 1980)

 DIELECTTIC PERMITTIVITY AND PVT DATA OF SOME N-ALKANES. BY SCAIFE, W.G.S. LYONS, C.G.R.

 (TRINITY COLL., DUBLIN, IRELAND. DEPT. OF ENGINEERING SCIENCE) P 193-211. 56.
 - J. PHYS. 0 VOL 13, NO. 4 (APR 1980)
- MAGNETIC MEASUREMENTS ON COAL. BY MALE, S.E. (CENTRAL ELECTRICITY RESEARCH LABS., 57. LEATHERHEAD, ENGLAND) P L67-76.
- 58. INDIUM CONTACTS TO LEAD TELLURIDE. (80 K). BY CHANG, 3. SINGER, K.E. NORTHROP, O.C. (MANCHESTER UNIV. INST. OF SCIENCE AND TECHNOLOGY, ENGLANO. DEPT. OF ELECTRICAL ENGINEERING) P 715-23.
 - J. PHYS. F VOL 10, NO. 4 (APR 1980)
- STRONGLY EXCHANGE-ENHANCEO PARAMAGNETISM OF HYOROGEN DEGASSED PROO(2). (LETTER TO THE EDITOR). BY MISAWA,S. (NIHON UNIV., TOKYO, JAPAN. DEPT. OF PHYSICS) P L115-8.

 THE ELECTRONIC SPECIFIC HEATS OF ORDERED PT(3)MN(X)CR(1-X) ALLOYS. (LETTER TO THE 59.
- 60. EDITOR). BY JEZIERSKI, A. KUENTZLER, R. WILLIAMS, D.E.G. (POLISH ACADEMY OF SCIENCES, POZNAN. INST. OF MOLECULAR PHYSICS) P L119-22.
- ELECTRON RADIATION DAMAGE IN THE RARE-EARTH METALS YTTRIUM, SAMARIUM AND YTTERBIUM AT 61 . LOW TEMPERATURES, BY DAOU, J.N. VAJDA, P. LUCASSON, A. LUCASSON, P. (PARIS UNIV., ORSAY, FRANCE. DEFAUTS DANS LES METAUX) P 583-97.
- CHANNELLING MEASUREMENTS OF THE TRAPPING OF AL INTERSTITIAL ATOMS BY GE ATOMS IN AN 62. AL-0.1 PERCENT GE CRYSTAL, (73-90 K). BY SWANSON, M.L. HOWE, L.M. QUENNEVILLE, A.F.
- AL (ATOMIC ENERGY OF CANADA, LTD., CHALK RIVER, ONTARIO) P 539-61J.

 MAGNETIC CHARACTERISTICS OF LAVES PHASE COMPOUND PRFE(2). BY SHIMOTOMA
 DOYAMA, M. (TOKYO UNIV., JAPAN. DEPT. OF MATERIALS SCIENCE) P 707-13. BY SHIMOTOMAI, M. MIYAKE, H.
- 64. PRESSURE EFFECT ON THE CURIE TEMPERATURE IN OILUTE FERROMAGNETIC ALLOYS. BY INOUE, J. SHIMIZU, M. (NAGOYA UNIV., JAPAN. DEPT. OF APPLIED PHYSICS) P 721-8.
 - PROC. K. NED. AKAD. WET., SER. 3 VOL 83, NO. 1 (MAR 1980)
- EXPERIMENTAL STUDIES IN THERMAL CONDUCTIVITY OF FLUIDS. III. THE THEORY OF CONVECTION 65. FOR THE MODEL OF TWO VERTICAL COAXIAL CYLINDERS, BY SNEL, J. A. A. TRAPPENIERS, N. J. BOTZEN, A. (AMSTERDAM UNIV., NETHERLANDS. VAN DER WAALS LAB.) P 69-80.
 - NATURWISSENSCHAFTEN VOL 67, NO. 3 (MAR 1980)
- THERMAL CONDUCTIVITY OF COMPRESSED COPPER POWDER. (IN GERMAN). BY KILIAN, H.-J. (GESAMTHOCHSCHULE KASSEL, GERMANY. ARBEITSGRUPPE FUER TECHNISCHE PHYSIK) P 142. 66.
 - Z. PHYS. B VOL 37, NO. 2 (1980)
- 67. BREAKDOWN OF SUPERCONDUCTIVITY IN CURRENT-CARRYING INDIUM WHISKERS. BY TIOECKS, R. SLAMA, G. (GOETTINGEN UNIV., GERMANY. PHYSIKALISCHES INST.) P 103-14.
- FIZ. MET. METALLOVEO. (RUSS. ED.) VOL 49, NO. 2 (JAN 1980)

 MAGNETIC SUSCEPTIBILITY OF KH18N (13-25) STEELS IN TEMPERATURE RANGE OF 4.2-300 K. S

 BOLSHUTKIN, D.N. DESNENKO, V.A. ILICHEV, V.YA. (ACADEMY OF SCIENCES OF THE UKRAINIAN 68. SSR, KHARKOV. INST. OF LOW TEMPERATUPE ENGINEERING PHYSICS) P 286-91.
- CRACK FORMATION ON BOUNDARIES OF GRAINS AND TWINS IN ZINC DURING COOLING TO LOW 69. TEMPERATURE. BY FYODOROV, V.A. FINKEL, V.M. PLOTNIKOV, V.P. (TAMBOV INST. OF CHEMICAL MACHINERY, USSR) P 413-5.
- LOW-TEMPERATURE CRITICAL NEUTRON SCATTERING IN IRON-NICKEL AND NICKEL-MANGANESE ALLOYS. 70. BY KUZMIN, N. N. MENSHIKOV, A. Z. (ACADEMY OF SCIENCES OF THE USSR, SVERDLOVSK. INST. OF METAL PHYSICS) P 433-6.
 - PHYS. STATUS SOLIDI A VOL 57, NO. 2 (FEB 1980)
- COMPARISON OF IRRADIATION HARDENING WITH DISLOCATION VELOCITY IN COPPER SINGLE CRYSTALS ELECTRON IRRADIATED AT 100 K. BY WADA, M. MESHII, M. (TOKYO INST. OF TECH., JAPAN. DEPT. OF MATERIALS SCIENCE AND ENGINEERING) P 631-8.
- INVESTIGATION OF RADIATION INDUCED DEFECTS IN SOLID ARGON. 3Y BALZER, R. GIERBERG, E. J. 72. (TECHNISCHE HOCHSCHULE, OARMSTADT, GERMANY. INST. FUER ANGEWANDTE PHYSIK) P <141-4.
- SPECIFIC HEAT CAPACITANCE OF LITHIUM-THALLIUM-TARTRATE AT LOW TEMPERATURES. BY GERTH, B. 73. SAHLING, A. POMPE, G. ET AL (TECHNISCHE UNIV., DRESDEN, EAST GERMANY. SEKTION PHYSIK) P K153-6.

PHYS. STATUS SOLIDI B VOL 97, NO. 2 (FEB 1980)

- 74. LOW-TEMPERATURE SPECIFIC HEAT OF VN(0.74) AND VN(0.89). BY LOVTCHINOV, V. MAEDGE, H. CHRISTENSEN, A.N. (BULGARIAN ACADEMY OF SCIENCES, SOFIA. INST. OF SOLID STATE PHYSICS)
- 75. BOUNDARIES OF METASTABLE STATES IN TYPE II SUPERCONDUCTORS, BY SHEHATA, L.N. (ATOMIC ENERGY ESTABLISHMENT, CAIRO, EGYPT. DEPT. OF MATHEMATICS AND THEORETICAL PHYSICS)
 P 641-50.

SOLID STATE COMMUN. VOL 33, NO. 10 (MAR 1980)

- 76. VACANCY FORMATION ENERGIES IN MIXED-PHASE (ALPHA+BETA) BRASS. (80-970 K). BY MACKENZIE, I.K. SCHULTZ, P.J. JACKMAN, J.A. (GUELPH UNIV., ONTARIO. DEPT. OF PHYSICS) P 1011-3.
- 77. SPECIFIC HEAT OF HIGH T(C), A-15 N3(J.75)GA(J.25). BY STEWART, G.R. WEBB, G.W. (LOS ALAMOS SCIENTIFIC LAB., N. MEX.) P 1015-8.
- 78. SHORT-RANGE ORDERING IN TSEF-TCNQ. BY BJELIS, A. BARISIC, S. (ZAGREB UNIV., YUGOSLAVIA. INST. OF PHYSICS) P 1041-4.
- 79. CHARGE TRANSPORT AND PRESSURE DEPENDENCE OF T(C) OF SINGLE CRYSTAL, FERROMAGNETIC EUB(6). (4-300 K). BY GUY, C.N. VON MOLNAR, S. ETOURNEAU, J. (IBM WATSON RESEARCH CENTER, YORKTOWN HEIGHTS, N. Y.) P 1055-8.
- 80. THE CHARGE DENSITY WAVE AND THE IMPURITY IN A LINEAR CONDUCTOR. BY TSUZUKI, T.
- SASAKI, K. (TOHOKU UNIV., SENDAI, JAPAN. DEPT. OF PHYSICS) P 1063-5.

 81. LATTICE CONTRACTION IN ELECTRON IRRADIATED 11-IAS(2). BY MUTKA, H. MOLINIE, P. (CEA CENTRE D ETUDES NUCLEATRES, FONTENAY-AUX-ROSES, FRANCE. SECTION D ETUDE DES SOLIDES IRRADIES) P 1083-6.

J. CHEM. THERMODYN. VOL 12, NO. 4 (APR 1980)

- 82. THERMODYNAMIC QUANTITIES FOR PROPANE. 1. THE VAPOUR PRESSURE OF LIQUID PROPANE. BY KRATZKE, H. (RUHR-UNIV. BOCHUM, GERMANY. INST. FUER THERMO- UND FLUIDDYNAMIK) P 305-9.
- 83. THERMOPHYSICS OF THE LANTHANIDE TRIHYDROXIDES. II. HEAT CAPACITIES FROM 10 TO 350 K OF ND(OH)(3) AND TB(OH)(3). LATTICE AND SCHOTTKY CONTRIBUTIONS. BY CHIRICO, R.D. WESTRUM, E.F., JR. (ILLINOIS UNIV., CHICAGO. DEPT. OF CHEMISTRY) P 311-27.
- 84. HEAT CAPACITY AT CONSTANT PRESSURE AND JOULE-THOMSON COEFFICIENT OF MONOCHLDRO-1,2,2,2-TETRAFLUOROETHANE. BY BENDER,R. BIER,K. MAURER,G. (KARLSRUHE UNIV., GERMANY. INST. FUER TECHNISCHE THERMODYNAMIK UND KAELTETECHNIK) P 335-41.
- 85. GAS-LIQUID CRITICAL TEMPERATURES OF MIXTURES CONTAINING ELECTRON DONORS. I. ETHER MIXTURES. BY TOCZYLKIN, L.S. YOUNG, C.L. (UNIVERSITY COLL. LONDON, FNGLAND. DEPT. OF CHEMISTRY) P 355-64.
- 86. GAS-LIQUID CRITICAL TEMPERATURES OF MIXTURES CONTAINING ELECTRON DDNORS. II. AMINE MIXTURES. BY TOCZYLKIN, L.S. YOUNG, C.L. (UNIVERSITY COLL. LONDON, ENGLAND. DEPT. OF CHEMISTRY) P 365-73.
- 87. INTERACTION SECOND VIRIAL COEFFICIENTS FOR (BENZENE + CYCLOHEXANE), BY MCELROY, P.J. SHANNON, T.W. WILLIAMSON, A.G. (CANTERBURY UNIV., CHRISTCHURCH, NEW ZEALAND. DEPT. OF CHEMICAL ENGINEERING) P 371-81.
- 88. THE THERMODYNAMIC PROPERTIES OF GINARY MIXTURES CONTAINING CARBON DISULPHIDE. II. EXCESS ENTHALPIES. BY HILL, R.J. SWINTON, F.L. (NEW UNIV. OF ULSTER, COLERAINE, N. IRELAND. SCHOOL OF PHYSICAL SCIENCES) P 383-5.

SECTION II. CRYOGENIC ENGINEERING

CHEM. ENG. NEWS VOL 58, NO. 18 (MAY 1980)

- 89. SUCCESSFUL OCEAN ENERGY TESTS STIR INTEREST. P 24+27-9.
- 90. C AND ENS TOP FIFTY CHEMICAL PRODUCTS AND PRODUCERS. (SPECIAL REPORT). BY STORCK, W. J. KIEFER, D. M. P 33-40.

DIMENSIONS/NBS VOL 64, NO. 3 (APR 1986)

- 91. NEW NBS GAS FLOW CALIBRATION SERVICE IS REFERENCED TO MASS FLOW STANDARDS. BY HIGGINS, K. P 15.
- 92. SECOND SUPPLEMENT FOR LNG MATERIALS AND FLUID USERS MANUAL. P 22-3.

REV. SCI. INSTRUM. VOL 51, NO. 5 (MAY 1980)

- 93. MICROMAGNETIC SUSCEPTOMETER, BY NAVE, S.E. HURAY, P.G. (TENNESSEE UNIV., KNOXVILLE. DEPT. OF PHYSICS AND ASTRONOMY) P 591-6.
- 94. APPARATUS FOR TRAPPING AND THERMAL DETECTION OF ATOMIC HYDROGEN IN HIGH MAGNETIC FIELDS AT LOW TEMPERATURES, BY WOOLLAM, J.A. (NEBRASKA UNIV., LINCOLN. DEPT. OF ELECTRICAL ENGINEERING) P 602-4.
- 95. CONTACTLESS CONDUCTIVITY MEASUREMENTS WITH A ROTATING SAMPLE MAGNETOMETER. BY FLANDERS, P.J. SHTRIKMAN, S. (PENNSYLVANIA UNIV., PHILADELPHIA. LAB. FOR RESEARCH ON THE STRUCTURE OF MATTER) > 617-20.
- 96. PERFORMANCE CHARACTERISTICS OF A SMALL DILUTION REFRIGERATOR USING A CENTERING DEVICE.
 BY FAGALY,R.L. BOHN,R.G. (CENTRE NATIONAL DE LA RECHERCHE SCIENTIFIQUE, GRENOBLE,
 FRANCE. CENTRE DE RECHERCHES SUR LES TRES BASSES TEMPERATURES) P 679.

IND. RES. DEV. VOL 22, NO. 5 (MAY 198J)

97. INNOVATIVE NOTEBOOK. HRI - AN IDEA WHOSE TIME HAS COME. (HYDROGEN RESEARCH INSTITUTE). BY JUENEMAN, F.B. P 17.

- NUCL. INSTRUM. METHODS VOL 163, NO. 3 (MAR 1980)

 <u>EFFECTS OF SPIRAL ELECTRIC GAPS IN SUPERCONDUCTING CYCLOTRONS.</u> BY GORDON, M.M.
 (MICHIGAN STATE UNIV., EAST LANSING. CYCLOTRON LAB.) P 327-36.
- PREPARATION AND USE OF LIQUID ARGON AS A SCINTILLATING TARGET FOR FAST NEUTRONS, 99. RAMSAY, W.D. BIRCHALL. J. MCKEE, J.S.C. (MANITOBA UNIV., WINNIPEG. CYCLOTRON LAB.) P 369-72.
- CALCULATED RESPONSE OF A TOTAL LIQUID ARGON CALORIMETER TO PROTONS AND ELECTRONS IN THE 100. 0.5-5.0 GEV ENERGY RANGE. BY GABRIEL, T.A. BISHOP, B.L. (OAK RIDGE NATINAL LAB., TENN.) P 427-40.

IBM J. RES. DEV. VOL 24, NO. 3 (MAY 1986)

VLSI DEVICE PHENOMENA IN DYNAMIC MEMORY AND THEIR APPLICATION TO TECHNOLOGY DEVELOPMENT 101. AND DEVICE DESIGN. BY TROJIMAN, K.R. (IBM GENERAL TECHNOLOGY DIV. LAB., ESSEX JUNCTION, VT.) P 299-309.

IBM TECH. DISCLOSURE BULL. VOL 22, NO. 12 (MAY 1980)

- 102. CREATION OF A MAGNETIC FLUX-FREE ENVIRONMENT. BY HABERMEIER, H. U. TSUEI, C.C. YEH, J.T. P 5489-91.
- 103. HIGH DENSITY JOSEPHSON BOARD JECHNOLOGY USING TWO-SIDED ETCHING. BY GELDERMANS, P. PALMER, M. J. P 5558-60.

U. S. PATENT GAZETTE VOL 933, NO. 4 (APR 1980)

- 104. POWER CYCLES BASED UPON CYCLICAL HYDRIDING AND DEHYDRIDING OF A MATERIAL. BY TERRY, L.E. SCHOEPPEL, R.J. PATENT NO. 4,198,827.
- CRYOSTAT AND COOLANT-SUPPLY SYSTEM THEREFORE. BY MERCIER, J. PONTHUS, A. (SOCIETE D 105. ETUDES D AUTOMATISATION, DE REGULATION ET D APPAREILS DE MESURES S.A., LYONS, FRANCE) PATENT NO. 4,198,828.
- 106. CRYOPUMPS. BY CARLE, J. (L AIR LIQUIDE, PARIS, FRANCE. SOCIETE ANONYME POUR L ETUDE ET L EXPLOITATION DES PROCEDES GEORGES CLAUDE) PATENT NO. 4,198,829.
- 107. METHOD OF FREEZING LIVING CELLS AND TISSUES WITH IMPROVED SUBSEQUENT SURVIVAL. SENKAN, S. M. HIRSCH.G.P. (DEPARTMENT OF ENERGY, WASHINGTON, D. C.) PATENT NO. 4,199,022.

SECTION III. ENERGY AND MISCELLANEOUS

PIPELINE GAS J. VOL 207, NO. 5 (MAY 1980)

- 108.
- EL PASO LNG EXECS TAKE EARLY RETIREMENT. (A BRIEF REPORT). P 6.
 NEW SLIDE-TAPE PACKAGE BOOSTS LNG TRUCK SAFETY. (A BRIEF REPORT). P 8. 109.
- WHAT REALLY LIMITS GAS SUPPLY. BY LINDEN, H.R. (GAS RESEARCH INST., CHICAGO, ILL.) 113. P 17-9.
- FUTURE GAS SUPPLY, DEMAND, CONSTRUCTION SOLID. BY LAHRENCE, G.H. (AMERICAN GAS ASSOC., 111. ARLINGTON, VA.) P 20-2.

AM. GAS ASSOC. MON. VOL 62. NO. 5 (MAY 1986)

- 112. GOVERNMENT POLICY AND THE GAS OPTION. BY LAWRENCE, G. H. (AMERICAN GAS ASSOC.,
- ARLINGTON, VA.) P 8-11.
- 113. PRELIMINARY COMPARISON OF METHANE VS. ETHANOL PRODUCTION FROM GRAIN FEEDSTOCKS. 8Y HAY , N . E . P 16-8 .
- FIRST INTERNATIONAL GAS RESEARCH CONFERENCE CONVENES JUNE 9-12 IN CHICAGO.

 INTERNATIONAL GAS UNION UNDERTAKES WORLD GAS SUPPLY AND DEMAND STUDY. P 32. 114.
- 115.

OIL GAS J. VOL 78, NO. 18 (MAY 1980)

- 116. LPG DEMAND SHOWS LIFE AS GLOBAL SURPLUS GROWS. BY TIPPEE, R. COWAN, D. (DISTRICT EDITORS) P 115-9.
- ALASKA PUSHING BIG PETROCHEM PROJECT. 117. BY WILSON, H. M. (WEST COAST EDITOR)
- 118. U.S. COAL-BASED ALTERNATE FUEL PROJECTS GROW. P 126+128.
- 119. DOME TAKES 20 PERCENT OF ARCTIC PROJECT TO MOVE LNG. P 128.
- 120 . SELECTIVE GAS TREATING PRODUCES BETTER CLAUS FEEDS. BY GOAR, B.G. (GOAR, ARRINGTON AND ASSOCIATES, INC., TYLER, TEX.) P 239-42.

- OIL GAS J. VOL 78, NO. 19 (MAY 1980)
 COAL-BASED SYNFUEL PROJECTS CONTINUE TO GROW. 121. P 75.
- NGPA GETS PRAISE AT AGA CONFERENCE. P 76-9. 122.
- U.S. OIL AND GAS RESERVES FALL FOR NINTH STRAIGHT YEAR. P 88-90. 123.
- 124. NATURAL GAS PHYSICAL PROPERTIES FROM PROGRAMMABLE CALCULATOR. BY ODOM, F.M. (SOLAR TURBINES INTERNATIONAL, SAN DIEGO, CALIF.) P 106-8.
- TEXAS PETROCHEMICAL COMPLEX HEADS FOR FULL PRODUCTION. BY AALUND, L.R. (REFINING 125. EDITOR) P 122+127.

- OIL GAS J. VOL 78, NO. 20 (MAY 1983)
- 126. REFINING, PETROCHEMICAL CONSTRUCTION ON UPSWING. BY CLOCK, G. (OISTRICT EDITOR) P 43-6.
- SIMPLIFIED REDLICH-KWONG EQUATION EASES COMPRESSOR CALCULATIONS. BY WISE, H.A. (COOPER 127. ENERGY SERVICES, SPRINGFIELD, OHIO) P 76-8.

GAS INO. VOL 24. NO. 7 (MAY 1980)

A.G.A.S LAWRENCE HONORED WITH ENERGY SERVICE AWARD, P 6. 128.

PROC. MAR. SAF. COUNC. VOL 37, NO. 4 (APR 1986)

CG-478, LNG ANO LFG - VIEWS ANO PRACTICES, POLICY AND SAFETY. BY SCHNEIDER, A.L. GREGORY, G.L. SEOLAK, J.S. (COAST GUARO, WASHINGTON, O. C. CARGO ANO HAZAROOUS 129. MATERIALS OIV.) P 80-4.

ENERGY INT. J. VOL 5, NO. 4 (APR 1980)

- 130. AN ENERGY POLICY FOR AUSTRALIA. BY THE TASK FORCE ON ENERGY OF THE INSTITUTION OF ENGINEERS, AUSTRALIA P 295-323.
- CLOSED CYCLE OSMOTIC POWER PLANTS FOR ELECTRIC POWER PRODUCTION. BY REALI, M. (ENTE 131. NAZIONALE PER L'ENERGIA ELETTRICA, MILAN, ITALY. OSR-CRIS) P 325-9.
- ENERGY CONSERVATION THROUGH INQUSTRIAL COGENERATION, BY HANNON, B. JOYCE, J. J. 132. (ILLINOIS UNIV., URBANA. ENERGY RESEARCH GROUP) P 343-54.
- OVERCOMING SOCIAL AND INSTITUTIONAL BARRIERS TO ENERGY CONSERVATION. BY BLUMSTEIN, C. 133. KRIEG, 9. SCHIPPER, L. YORK, C. (CALIFORNIA UNIV., BERKELEY. LAHRENCE BERKELEY LAB.) P 355-71.
- OIL FROM SHALE THE POTENTIAL, THE PROBLEMS, AND A PLAN FOR DEVELOPMENT. BY LEHIS, A.E. 134. (CALIFORNIA UNIV., LIVERMORE. LAWRENCE LIVERMORE LAB.) P 373-87.

ENERGY OEV. JPN. VOL 2, NO. 3 (JAN 1980)

DESIGN OF AN ISOBUTANE BINARY CYCLE GEOTHERMAL GENERATION SYSTEM. BY AIKAWA, K. 135. (MITSUBISHI HEAVY INOUSTRIES, LTO., TOKYO, JAPAN) P 193-209.

ENERGY J. VOL 1, NO. 2 (APR 1980)

- APPROPRIATE GOVERNMENT POLICY TOWARD COMMERCIALIZATION OF NEW ENERGY SUPPLY 136 . TECHNOLOGIES, BY SCHMALENSEE, R. (MASSACHUSETTS INST. OF TECH., CAMBRIOGE. SLOAN SCHOOL OF MANAGEMENT) P 1-40.
- 137.
- ENERGY PRICES AND THE U.S. ECONOMY IN 1979-1981. BY MORK, K.A. HALL, R.E. (MASSACHUSETTS INST. OF TECH., CAMBRIDGE. ENERGY LAB.) P 41-53.

 SIMULATION OF WORLD OIL MARKET SHOCKS A MARKOV ANALYSIS OF OPEC AND CONSUMER BEHAVIOR. 138. BY KOSOBUO, R.F. STOKES, H.H. (ILLINDIS UNIV., CHICAGO) P 55-84.
- 139. RESIDENTIAL SUBSTITUTION OF OFF-PEAK FOR PEAK ELECTRICITY USAGE UNDER TIME-OF-JSE PRICING. BY CAVES, D.W. CHRISTENSEN, L.R. (WISCONSIN UNIV., MADISON) P 85-142.

ENERGY COMMUN. VOL 6, NO. 2 (1980)

- 140 . CONVERSION OF OIL-SHALE KEROGEN IN CO-STEAM AT LOW PRESSURE - A PRELIMINARY REPORT. 3Y CUMMINS, J.J. SANCHEZ, O.A. ROBINSON, W.E. (OEPARTMENT OF ENERGY, LARAMIE, WYO. LARAMIE ENERGY TECHNOLOGY CENTER) P 117-35.

 LABORATORY SIMULATION OF TRUE IN SITU COMBUSTION PETORTING OF QIL SHALE. 3Y OUVALL, J. J.
- 141. (DEPARTMENT OF ENERGY, LARAMIE, WYD. LARAMIE ENERGY TECHNOLOGY CENTER) P 137-52.
- 142. STUDIES ON THE UTILIZATION OF HYDROGENATED SHALE OIL AS A STEAM PYROLYSIS FEEDSTOCK FOR THE PRODUCTION OF LIGHT OLEFINS. BY GRISWOLO, C.F. BALLUT, A. KAVIANIAN, H.R. ET AL (COLORADO SCHOOL OF MINES, GOLDEN) P 153-78.

EPRI J. VOL 5, NO. 3 (APR 1983)

- STORAGE STRATEGIC ELEMENT IN ENERGY MANAGEMENT. (EDITORIAL). BY SCHNEIOFR, T.R. (ELECTRIC POWER RESEARCH INST.. PALO ALTO, CALIF.) P 2-3. 143. STORAGE
- 144.
- MHD OIRECT CHANNEL FROM HEAT TO ELECTRICITY. BY LIHACH, N. P 21-5.

 QUALITY OF LIFE AN INTERNATIONAL COMPARISON. BY HOPKINSON, J. P 26-31. 145.

SUBJECT INDEX FOR CURRENT AWARENESS LIST NO. 704

SECTION I. LOW TEMPERATURE PHYSICS AND CHEMISTRY

UNIVERSITY OF FLORIDA

3 1262 08520 3486

Crystal Structure and Lattice Properties
2, 3, 5, 10, 13, 16, 31, 33, 40, 47, 61, 62,
69, 70, 71, 72, 76, 78, 81

Fluid Properties and Structure
12, 15, 18, 19, 22, 27, 28, 29, 30, 34, 35, 56, 65, 72, 82, 85, 86, 87, 88, 99, 124, 127

Magnetic Properties and Materials
11, 13, 29, 30, 45, 51, 53, 57, 59, 63, 64, 68, 79

Optical Properties 7, 9, 11, 28, 35

Semiconductors 7, 8, 9, 11, 44, 101 Sorption - 6, 15, 31, 32

Superconductors 25, 26, 36, 39, 43, 45, 46, 47, 48, 49, 50, 51, 52, 53, 67, 75, 77, 78, 98, 102,

Thermal Properties of Solids 4, 13, 14, 60, 73, 74, 77, 83, 84

Thermodynamics, Statistical Physics, and Transport Processes
1, 12, 19, 27, 34, 65

Transport Properties of Solids 41, 42, 44, 51, 54, 58, 66, 79, 80

Other - 17, 20, 23, 24, 92

SECTION II AND III. CRYOGENIC ENGINEERING AND ENERGY

Aerospace Safety - 109, 129

Cryobiology - 107

Energy 20, 21, 25, 37, 38, 55, 57, 89, 97, 104, 108 thru 145

Equipment and Devices 25, 26, 46, 49, 52, 98, 101, 103, 106

Gas Separation, Liquefaction, and Production
37, 90

Heat and Mass Transfer - 91

Hydrogen - 1, 18, 37, 38, 94, 97, 104

LNG and Methane 55, 56, 82, 92, 97, 104, 108 thru 129

Metallurgy and Mechanical Properties 1, 3, 8, 23, 24, 39, 40, 47, 50, 69, 70, 71, 72, 75, 76, 81, 104

Metrology and Instrumentation 17, 36, 37, 38, 46, 52, 57, 91, 93, 94, 95, 96, 98, 99, 100, 102, 105

Propulsion and Space Applications 17, 22

Refrigeration - 96, 105

Other - 90, 92

GPO 856 - 574

Annual Subscription Price: \$25.00 U.S. and Canada, \$30.00 elsewhere (includes air mail). Subscriptions, renewals, and changes of address should be sent to National Bureau of Standards, Cryogenic Data Center, Boulder, Colorado 80302, ATTN: Deborah J. Frizen

DEPARTMENT OF COMMERCE NATIONAL BUREAU OF STANDARDS BOULDER, COLORADO 80302

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE \$300

POSTAGE AND FEES PAID U.S. DEPARTMENT OF COMMERCE 215

